



Weatherford[®]

Downhole Milling Tools



Fishing Services

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Bladed Junk Mills

Alloy steel packers, squeeze tools, perforating guns, drillpipe, tool joints, reamers, reamer blades, rock bits. When the toughest fish need milling, Weatherford bladed junk mills do the job. These mills are dressed with either crushed tungsten carbide for loose fish or junk, or Weatherford's CustomCut™ inserts, for stationary fish or junk. Bladed junk mills are available with optional-length fishing necks, stabilizers and combination stabilizers-fishing necks. Extra-long mill heads reduce risk of casing damage. Large circulation ports and watercourses provide better cooling and more efficient cuttings removal. These mills are available in the full range of standard sizes and can be special ordered to any length and OD required.



Single-Port Mills

These Weatherford CustomCut insert-dressed mills are manufactured with one extra-large offset port, giving more room for debris and cuttings removal if you wish to reverse circulate. The blades are positioned to prevent coring of the mill. As with any mill dressed with tungsten carbide inserts, single-port mills should not be used for milling a loose fish or junk. Weatherford stocks these mills for 4 1/2-, 5 1/2- and 7-in. casing of any weight.



Flat-Bottom (Cone-Buster) Mills

These mills are equally suited for cutting and hammering. They are designed with large circulation ports to improve mud circulation for cooling and cuttings removal. The slightly concave bottom keeps the fish in alignment with the center of the mill. Flat-bottom mills are available for casing and tubing of all weights and sizes.



Gauge Mills

Gauge mills are designed for running downhole before a whipstock or casing patch is set. These slightly overdrift mills clean up unsuspected restrictions, ensuring proper hole size. Gauge mills are precision ground to casing weights.



Weatherford CustomCut milling- or cutting-grade inserts are available in various configurations and geometries. Our advanced mill engineering and certified welders ensure a consistent and durable cutting structure on every mill and rotary shoe we produce.

Window Mills

Window mills are used on the second run of a conventional whipstock exit. The insert blades are backed with crushed tungsten carbide, enabling these mills to exit the casing with minimal wear.



Round-Nose Window Mills

These less aggressive window mills are used for cleaning up ledges to give an exit a smooth, even transition.



Tubing Mills

When sand, cement and scale plug tubing, tubing mills clean them out with a combination of jetting and milling action. They are excellent for running on the bottom of a mud motor. These mills are available in 1 3/4- to 3 3/4-in. OD and either bladed, flat-bottom or bladed with inserts.



Econo Mills

Econo mills are designed to excel at drilling through cement or drillable plugs. These mills contain hundreds of carbide chips for cutting and offer ample circulation area to carry away cuttings. The main blade crosses the center of the mill face, eliminating "dead spots" and providing faster, safer, less expensive milling than a rock bit. Weatherford stocks Econo mills for 4 1/2-, 5 1/2-, 7- and 9 5/8-in. casing of any weight.



The crushed tungsten carbide used to dress these mills consists of carefully sized, high-grade tungsten carbide particles in a tough matrix. The matrix readily bonds to the mill body and holds the tungsten carbide particles in position as a cutting surface.

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Taper Mills

Taper mills ream out restrictions, collapsed casing and liner sections and deburr whipstock windows and casing. The lower end of these mills, with its small diameter, enters the collapsed section of casing or liner. Then slightly spiraled reamer edges, covered with crushed tungsten carbide, mill away the under-sized section to full mill diameter. Taper mills are available in standard sizes and can be special ordered to any length and OD required.



String/Watermelon Mills

These mills are excellent for reaming spots in casing, wiping out keyseats and dog-legs, and extending windows of whipstocks. Toughened, slightly spiraled reamer blades, covered with crushed tungsten carbide, are held to close OD tolerances for maximum opening in the casing or keyseat. String/watermelon mills can be run throughout the drillstring. They are available in all standard and special-order sizes.



CustomCut™ Pilot Mills

Pilot mills are designed for milling casing, liners, rotary shoes or large-ID tubing. With Weatherford's *CustomCut* inserts staggered along the cutting blades, these mills can achieve high penetration rates with minimal wear. The small, curled cuttings are easily removed, preventing birdnesting. The pilot end of these mills is dressed to stabilize in the ID of the material being milled. Weatherford stocks standard mills and can manufacture requested sizes.



Skirted Mills

Junk mills are available with a skirt, or guide sleeve, for aligning with the fish and keeping these mills from rotating off the fish. They are especially useful when the top of the fish is split or distorted. The skirt, or guide, enables directionally stable cutting action and eliminates the possibility of casing damage.



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